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**Conflict-derived displacements
in Ghana
Focus on Sawla-Tuna-Kalba
and Bawku Municipal districts**

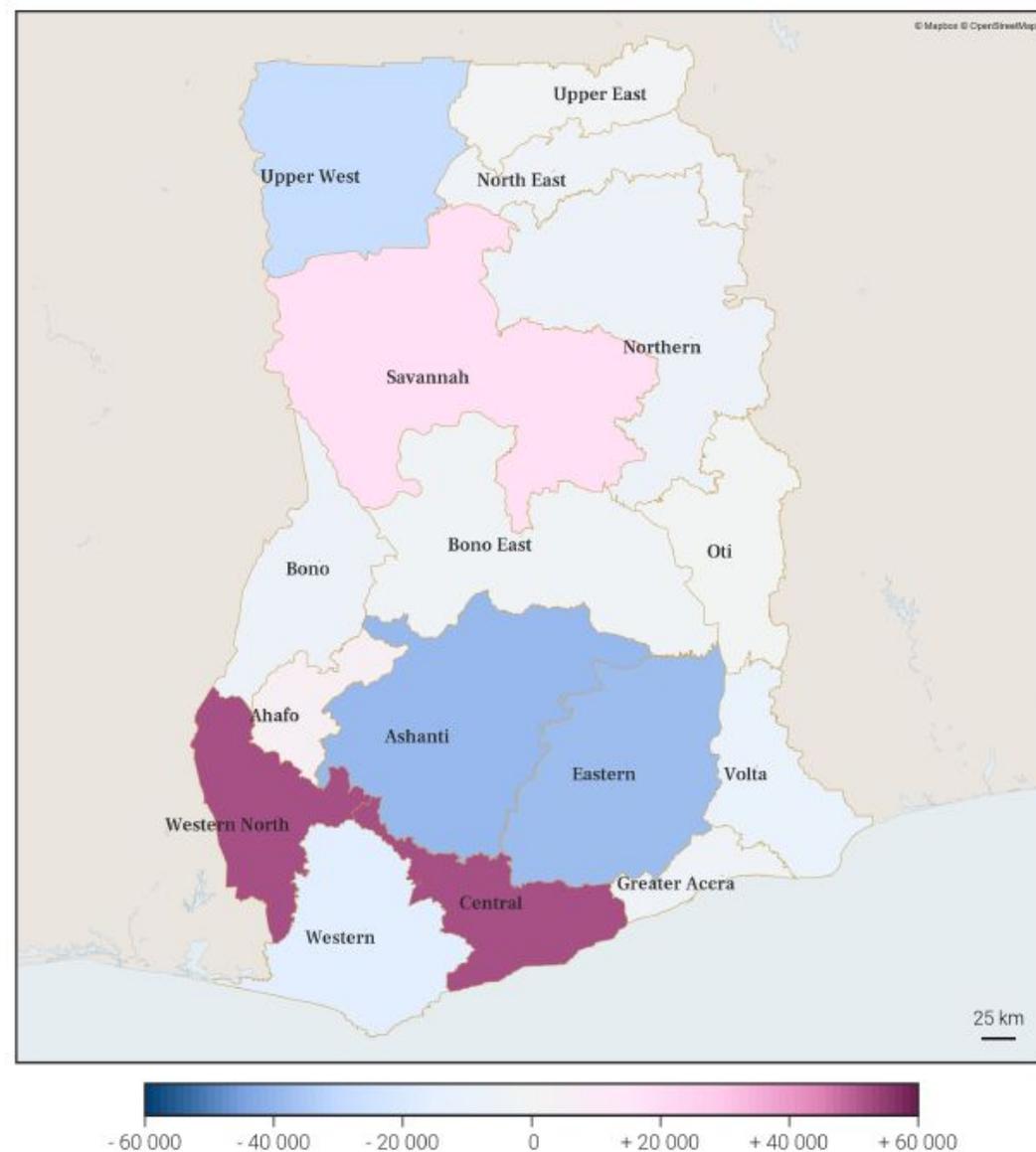
October 2025

Flowminder Foundation

From mobile operator data (Call Detail Records, CDRs*), it is possible to gather data on internal displacements complementary to those collected in the field - in particular long distance displacements across Ghana - and estimate precise timing and chronology.

The aim of the present report is to showcase how mobility estimates derived from Telecel Ghana's mobile phone usage data (pseudonymised Call detail records, CDRs) can support NADMO with monitoring displacements immediately after an event (e.g. attack in Sawla Tuna-Kalba district on 24 August 2025), and in cases of long-term displacement crisis (e.g. Bawku since 2021).

In addition, CDRs can provide unparalleled quantitative information on the evolution of population density over time necessary to NADMO's preparedness efforts, needs assessment and risk mapping (see ["Thematic Brief: Population Mobility & Distributions in Ghana in 2024"](#))



Regions of Ghana

Population change per region from August 2024 to August 2025 due to internal mobility - see page 12 for details

* Disclaimer: Call Detail Records (CDRs) are not survey or key informant data. See methodology [here](#).

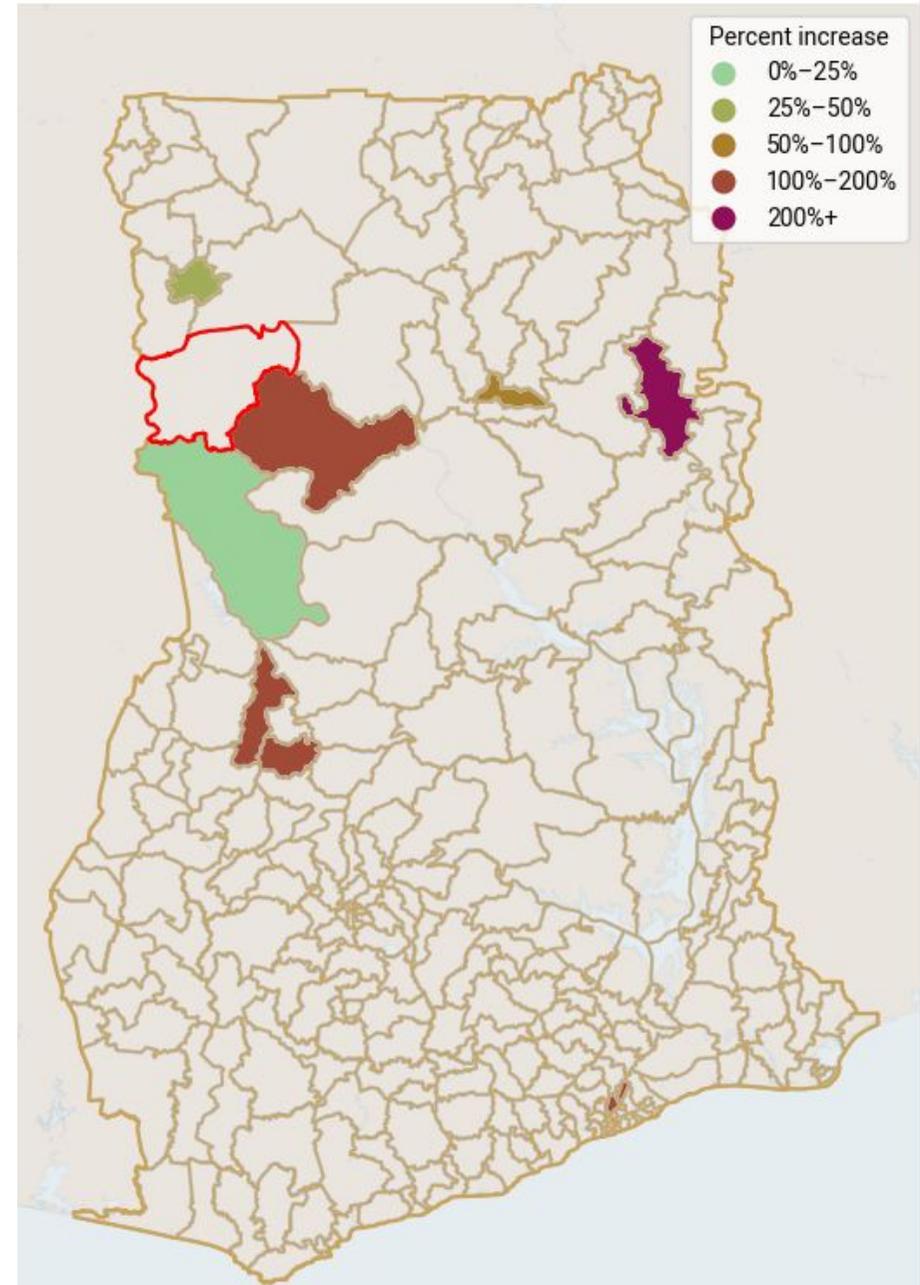
Part 1: Sawla-Tuna-Kalba district

Violent attacks in Sawla-Tuna-Kalba district on 24 August 2025 led to the displacements of thousands of individuals locally, to nearby Côte d'Ivoire, and across Ghana ([DTM flash report, September 2025](#)).

Map & table: Displacements from Sawla-Tuna-Kalba following the attacks on 24 August 2025:

% increase in arrivals from Sawla-Tuna in the week following the event (25 Aug - 31 Aug) compared to the Jan-Apr 2025 period.

| Destination region | Destination district | % increase arrivals |
|--------------------|---------------------------------|---------------------|
| Northern | Yendi Municipal | + >200 % |
| Bono East | Techiman Municipal | + 135 % |
| Greater Accra | La Nkwantanang Madina Municipal | + 135 % |
| Bono | Wenchi Municipal | + 120 % |
| Savannah | West Gonja | + 105 % |
| Greater Accra | Ga East Municipal | + 100 % |
| Northern | Sagnarigu Municipal | + 75 % |
| Upper West | Wa Municipal | + 25 % |



Part 1: Sawla-Tuna-Kalba district

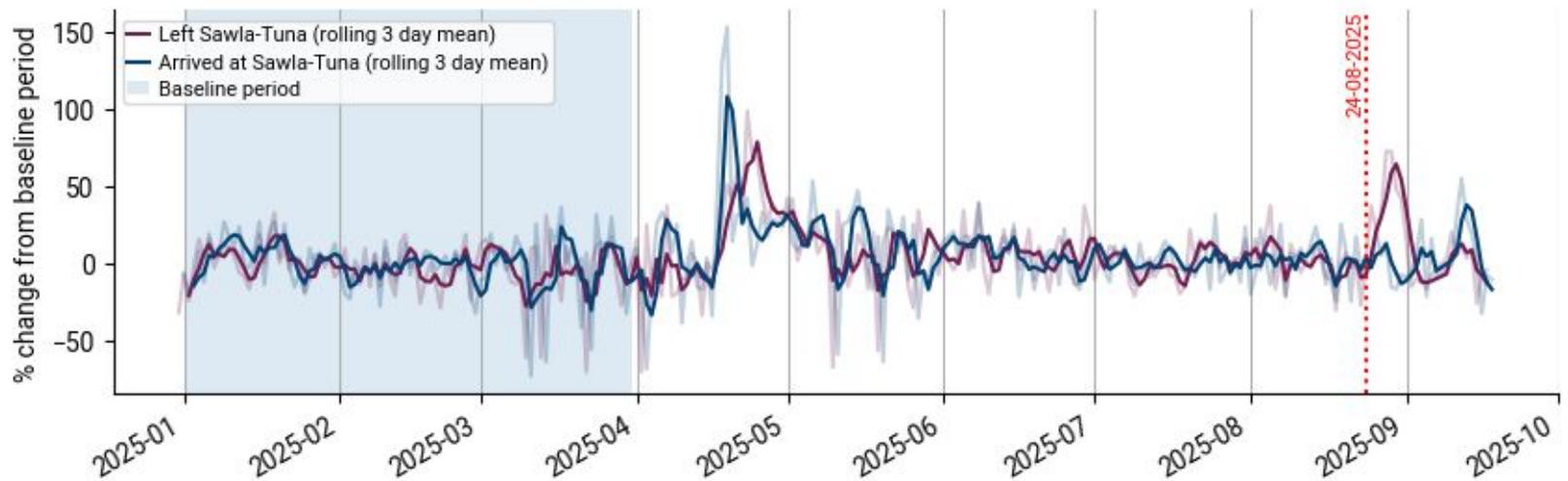
In addition to the thousands of displacements reported by DTM within the Sawla-Tuna-Kalba district and nearby Bole (both in Savannah), we also observe, from our mobility estimates derived from Telecel data, **excess movements from Sawla-Tuna-Kalba to more distant regions, including Northern, Bono, Bono East, Upper Western and Greater Accra** (please see map and table on the previous slide), in the week following the event.

Note: Our displacement methodology currently relies solely on subscriber numbers, which have not yet been weighted to be representative of the entire population using survey data (unlike our resident relocation estimates, which are weighted - see following section on Bawku Municipal for example). However, we cannot release subscriber numbers directly. Instead, we present the percentage change in departures from Sawla-Tuna-Kalba, compared to the median number of departures between January and April 2025, while our weighting methodology for displacement statistics is being developed.

Because we observe an **unusually large number of departures from Sawla-Tuna-Kalba (+ 60%)** took place just after **the event date (24 August)**, we infer that these relocations likely correspond to displacements, and the following **peak of arrivals in September** may correspond to returns.

Evolution in the number of arrivals and departures to/from Sawla-Tuna-Kalba between January and October 2025

% change in total arrivals and departures compared to their median between January and April 2025.



Part 2: Bawku Chieftaincy Conflict

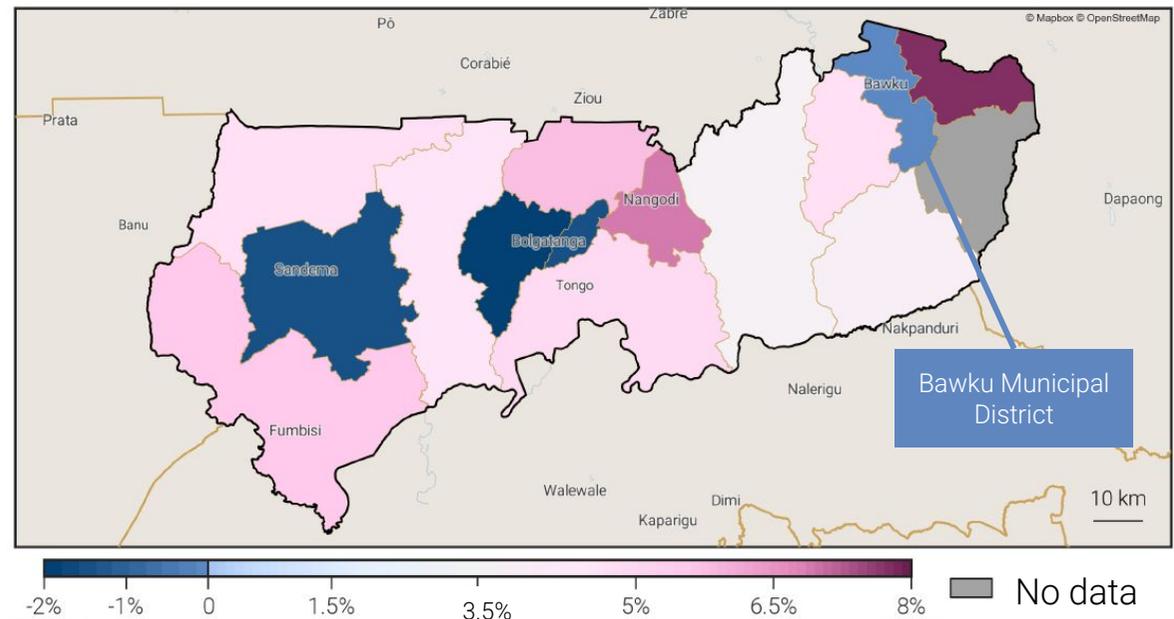
Background

The [long-standing Bawku conflict](#) has escalated again in recent years. Since 2021, the situation has deteriorated, resulting in a curfew being imposed in October 2024. Another wave of violence was reported in July 2025.

Using Telecel Ghana's pseudonymised CDR data, survey data and census data (see methodology report [here](#)), we provide **monthly estimates of the resident population** in the Bawku Municipal district (the area affected by the conflict) from January 2020 (and up to August 2025 in the present report - but the estimates are updated on a monthly basis going forward), as well as **monthly migration estimates** to and from the Bawku Municipal district.

Unlike our displacement estimates for Sawla-Tuna-Kalba, **these monthly estimates are weighted** (bias-adjusted and scaled), and **represent the general population** and its mobility, rather than subscribers of Telecel Ghana.

Districts in the Upper East region
Annual % change in population per district in Upper East
(August 2024 to August 2025) - see page 10 for details



Part 2: Bawku Chieftaincy Conflict

Evolution of Bawku Municipal District's population, 2020 - 2025

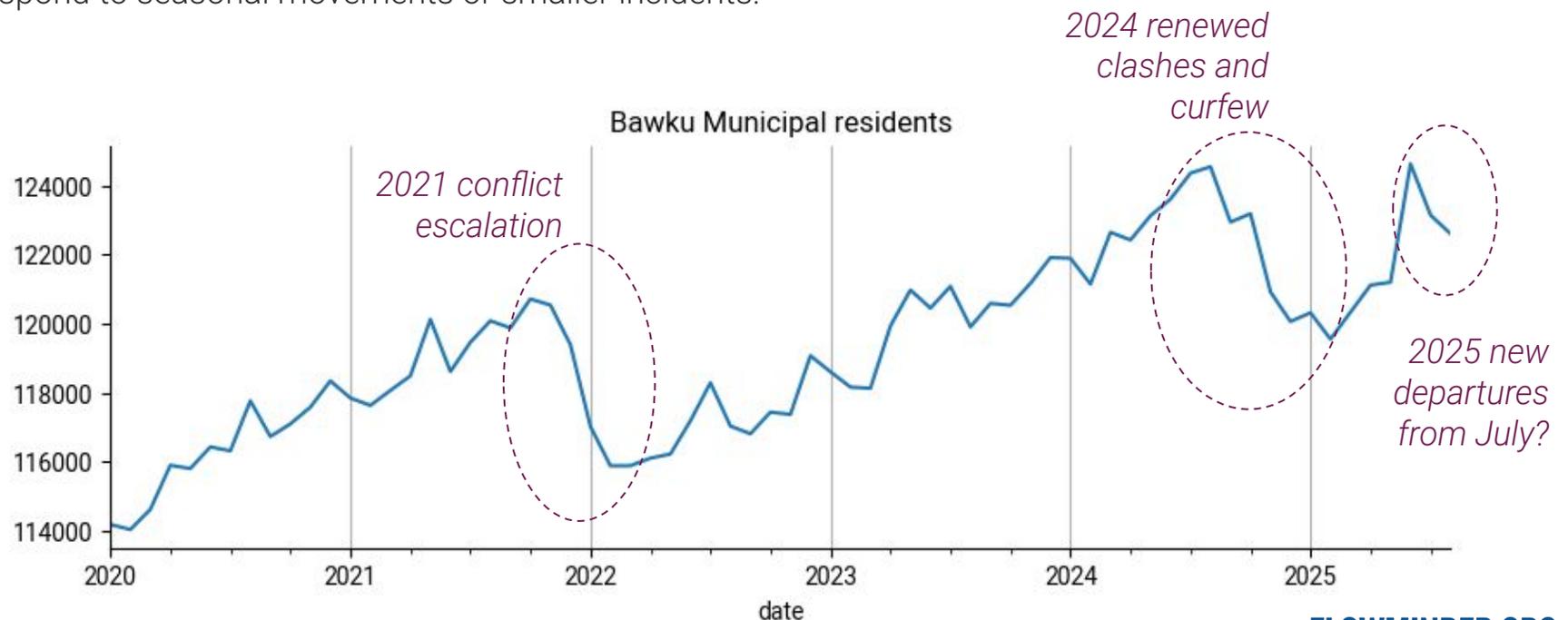
From our monthly population estimates of the Bawku Municipal district, we observe an overall increase in population since January 2020, which is largely due to our population projection method integrating a natural growth rate of around 2% a year.

However, there is a **sudden decrease in population (-5,000 people)** due to people leaving the region and displacements at the **end of 2021, corresponding to the start of the renewed escalation of the conflict**, and **another large decrease from mid-2024 (-4,000 people)**, starting just before a curfew was imposed in October 2024.

In 2025 however, the population has increased again from January to June (+4,000 people), but a new wave of departures may have started again in July 2025 (-1,500 people in August 2025, compared to June 2025).

Smaller monthly variations are observed over the years (e.g. -1,000 people in February and April, +1,000 in May/June every year), which may correspond to seasonal movements or smaller incidents.

Resident estimates each month in the Bawku Municipal district - from January 2020 to August 2025



Part 2: Bawku Chieftaincy

Conflict

Relocations from Bawku Municipal in August 2025

We also estimate the number of relocations (changes in residence) from one district to another each month.

The table shows the top 10 relocations from Bawku Municipal district to other districts across the country, from July to August 2025, potentially giving an indication of where people fleeing the conflict have travelled to (however, routine mobility analysis shows that people commonly relocate out of Bawku Municipal each month).

The main destinations from Bawku Municipal are nearby districts in **Upper East** (from which people may then relocate further away), and districts further south in the **Northern region**, including to Tamale.

Smaller numbers of people also left Bawku Municipal in July 2025 to go to **Kumasi** and **Greater Accra**, and other locations throughout the country.

Top 10 district destinations from Bawku Municipal District in August 2025 (Estimated number of people arriving in destination)

| Region | District | Top 10 relocation flows from Bawku Municipal district to another district (August 2025) |
|------------|--------------------------------|---|
| Upper East | Pusiga | 780 |
| Upper East | Binduri | 410 |
| Upper East | Bawku West | 390 |
| Upper East | Bolgatanga Municipal | 380 |
| Northern | Karaga | 280 |
| Upper East | Garu | 260 |
| Northern | Sagnarigu Municipal | 190 |
| Upper East | Tempane | 160 |
| Northern | Tamale Metropolitan Area (TMA) | 110 |
| Upper East | Kasena Nankana Municipal | 90 |

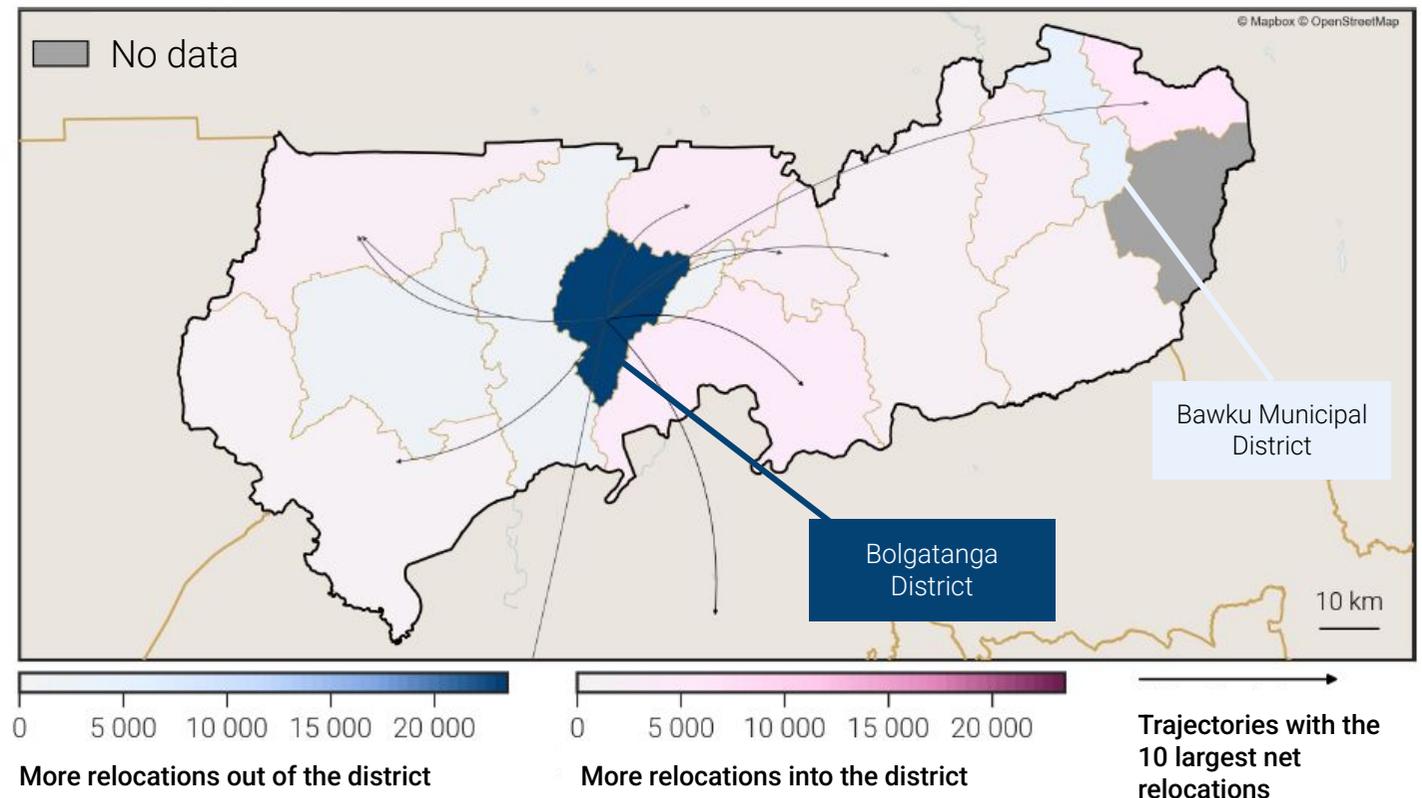
Part 2: Bawku Chieftaincy Conflict

Upper East regional context - August 2024 to August 2025

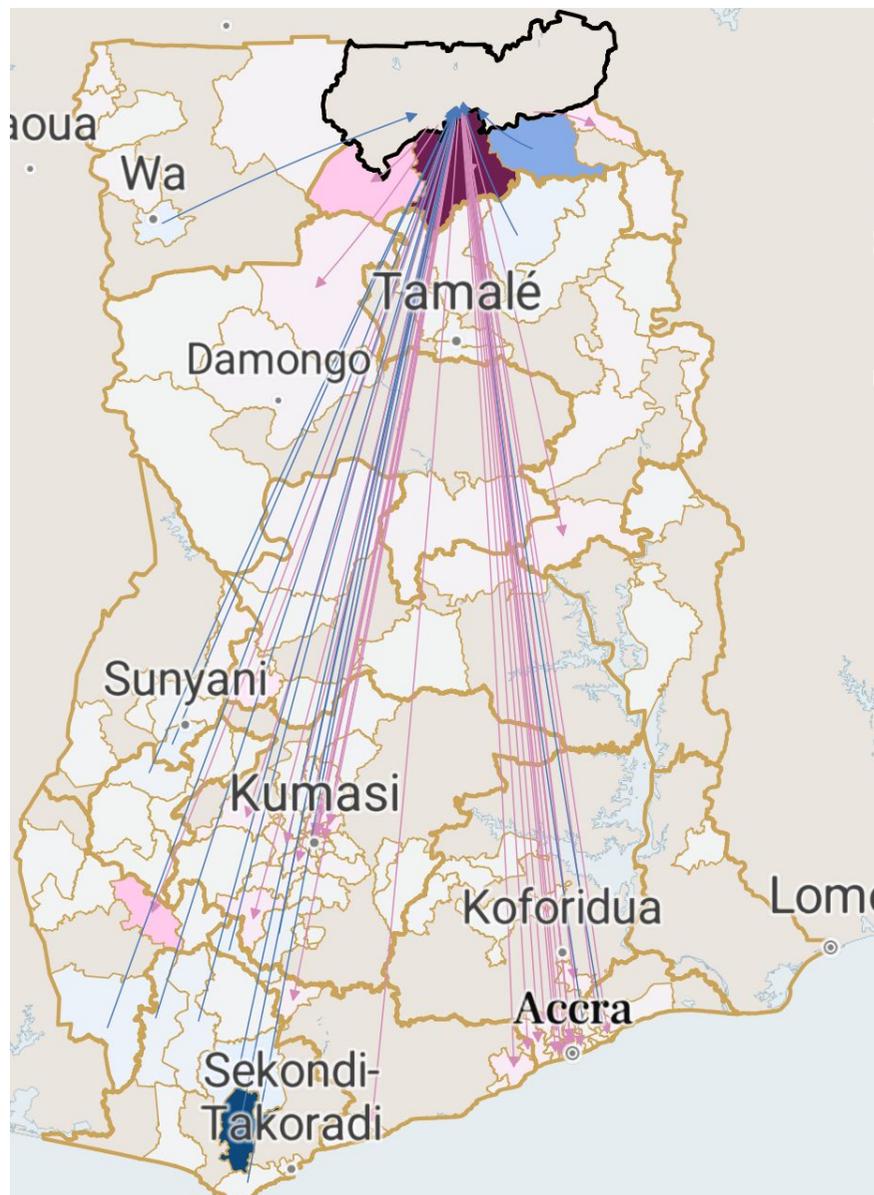
However, the largest population movements observed in the Upper East region for the past year **are not out of Bawku Municipal**, but **out of Bolgatanga Municipal**, which is the region capital.

Over 20,000 people relocated out of Bolgatanga, from August 2024 to August 2025, moving to nearby districts in Upper East and throughout the country.

Net relocations for each district within the Upper East region
(August 2024 to August 2025)



Net relocations between the Upper East region and districts outside of the region (August 2024 to August 2025)

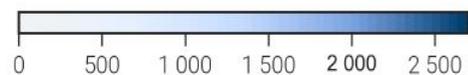


Part 2: Bawku Chieftaincy Conflict

Upper East regional context - August 2024 to August 2025

From the Upper East region, thousands of people have relocated to the North East region, Kumasi, Greater Accra and Western North region between August 2024 and August 2025.

Perhaps more surprisingly, in the same time period, the largest net inflow to the Upper East region (2500 people) is from Tarkwa-Nsuaem Municipal in the Western province (an area with active mining).



More departures from districts outside the Upper East Region to the Upper East Region, than arrivals from the Upper East Region.

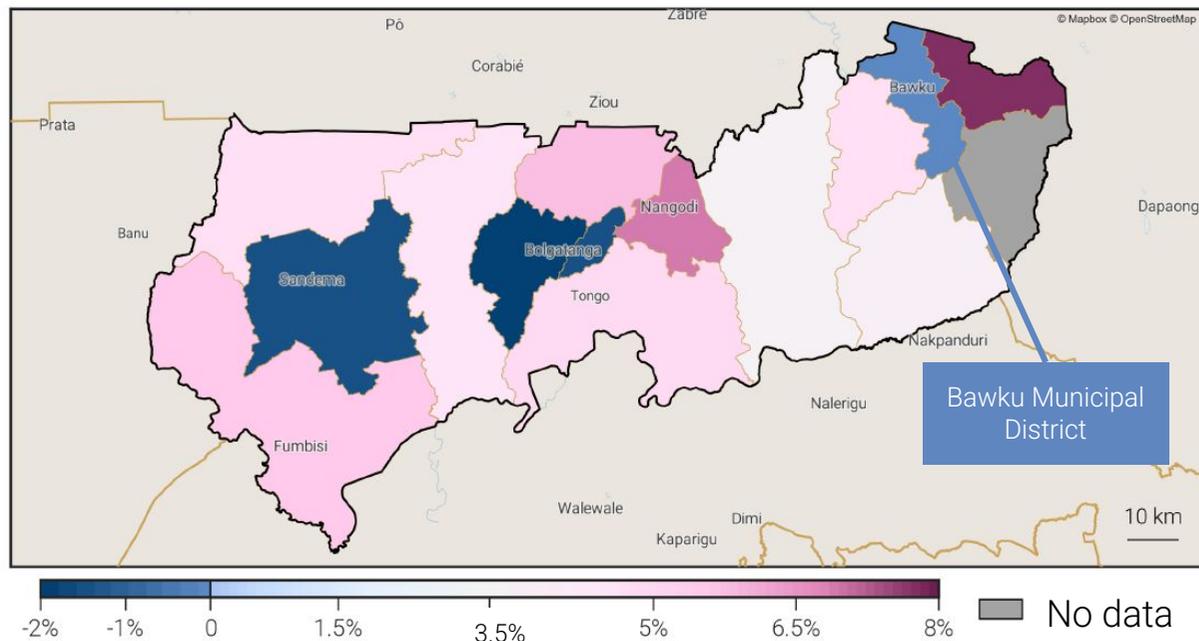
More arrivals from the Upper East Region to districts outside the Upper East Region, than departures to the Upper East Region.

Part 2: Bawku Chieftaincy Conflict

Upper East regional context - August 2024 to August 2025

Over the August 2024 to August 2025 time period, the mobility between the Upper East region and the rest of the country hasn't led to large changes in the total number of people in the region, and the evolution of the population total (not composition) is mainly driven by the natural growth rate (+2.06 % in a year).

Annual % change in population per district in Upper East
(August 2024 to August 2025)



Within the region however, there have been large changes in population numbers per district.

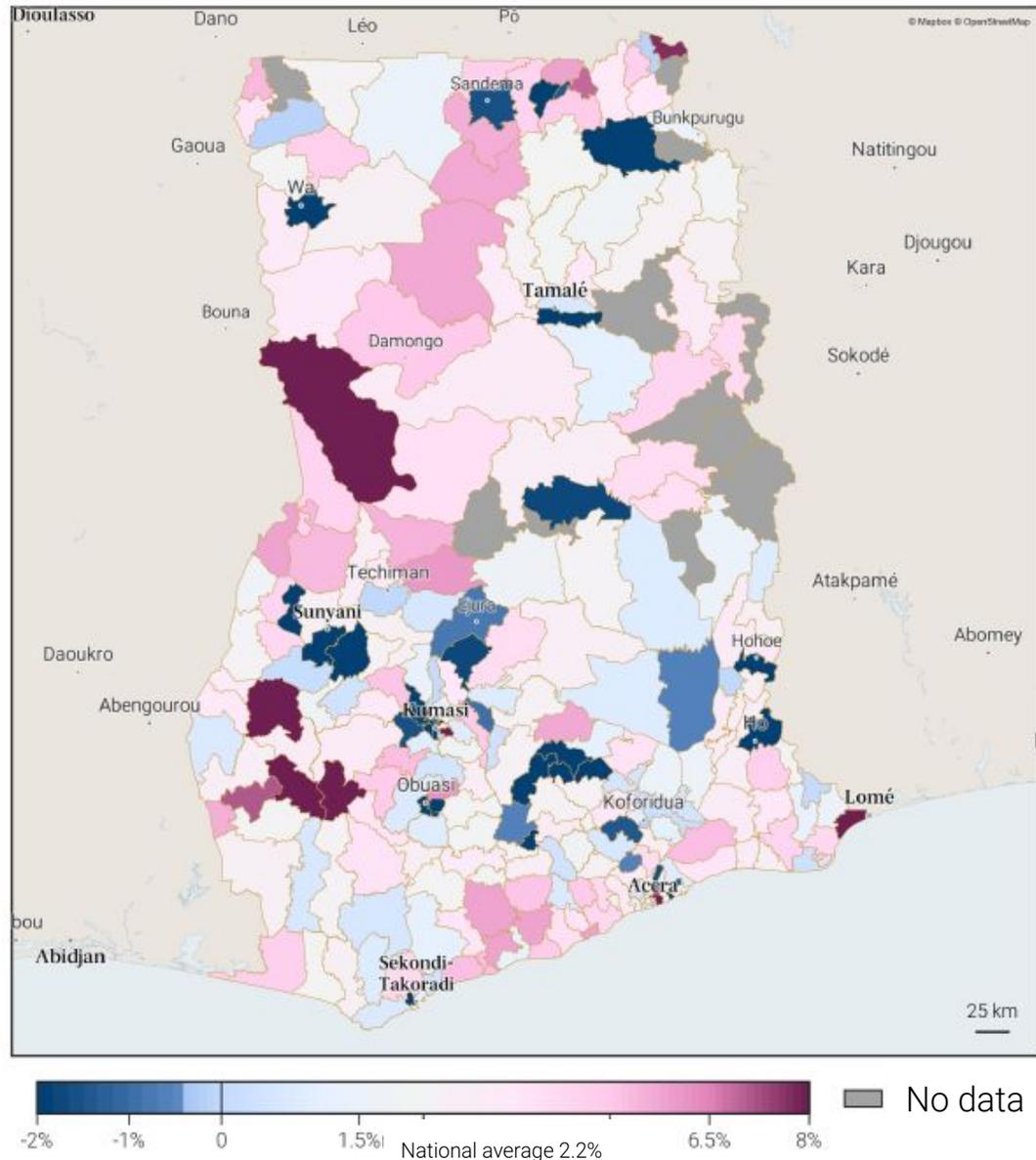
The population of the Bolgatanga Municipal and Builsa North districts has been decreasing by 2% over the time period due to more people leaving these districts than arriving. The population of Bawku Municipal fluctuated (decreased, then increased, then decreased again - as described on slide 6), leading to an overall decrease of around 0.25%.

Other districts have increased in population, and in particular Pusiga (+ 8%). Pusiga district borders Bawku Municipal and is the main destination from Bawku Municipal, but it also receives many residents from Bolgatanga.

Part 3: Up-to-date population estimates incl. internal mobility

Necessary for preparedness: updated need assessments and risk mapping

Annual % change in population (Aug 2024 to Aug 2025) per district



For many districts in Ghana, the population total varies due to internal mobility over months and years, and the natural growth rate alone is not sufficient to project population figures in the years following the census.

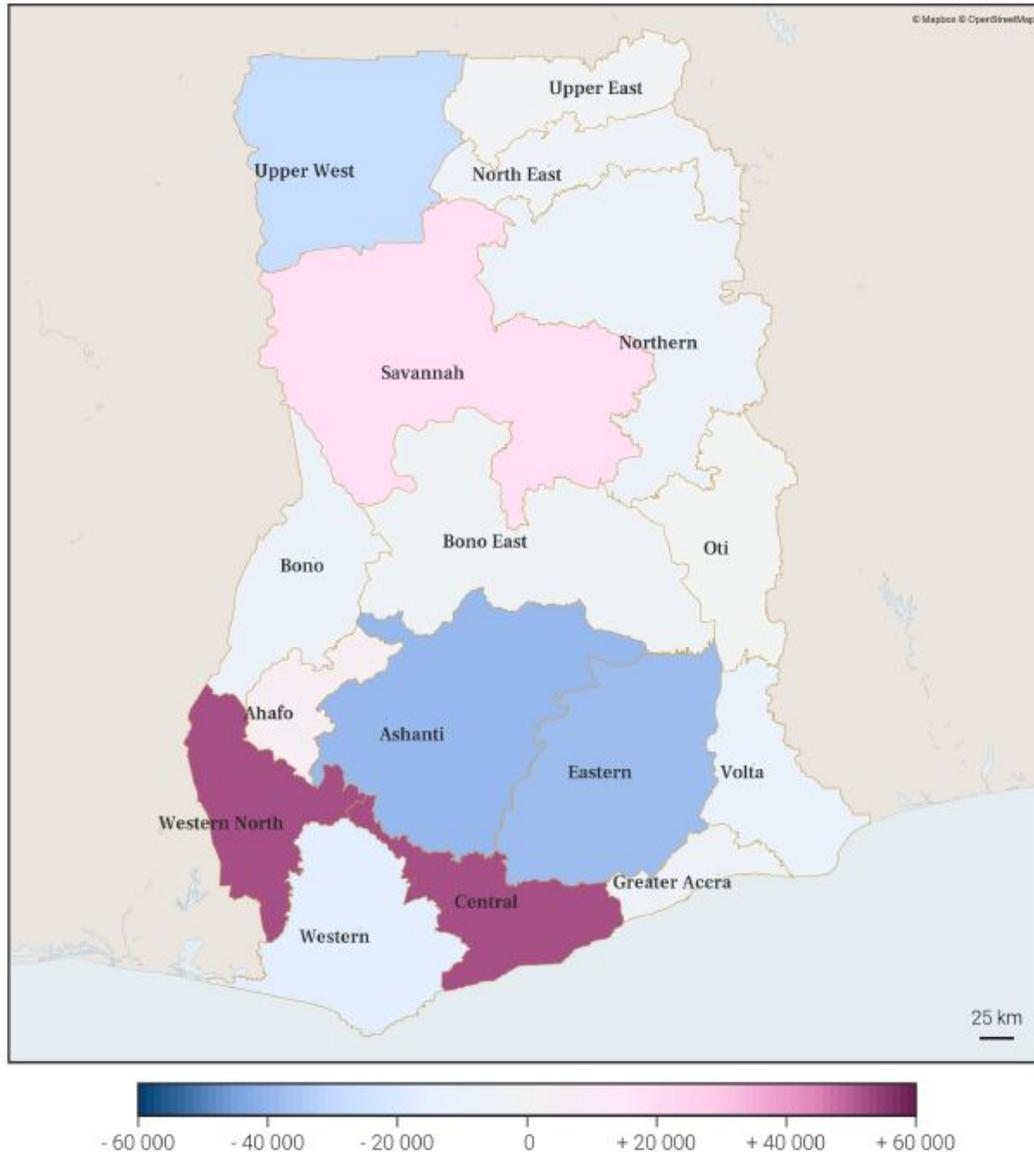
Population % change from August 2024 to August 2025 per district:

- **Districts in pink:** population growth higher than the natural growth rate of 2.2% (e.g. 8% in Bole district, Pusiga district)
- **Districts in light blue:** growth lower than 2.2% (more departures than arrivals)
- **Districts in dark blue:** declining populations, e.g. Wa Municipal, Bolgatanga Municipal.

Part 3: Up-to-date population estimates incl. internal mobility

Necessary for preparedness: updated need assessments and risk mapping

Population change per region from August 2024 to August 2025 due to internal mobility



Population change from August 2024 to August 2025 per region:

At the regional level, Western North and Central are the regions gaining the largest number of residents due to relocations (more than 50,000 than expected, each), over the time period.

Ashanti, Eastern and Upper West have however seen more departures than arrivals, thereby losing between 20,000 and 40,000 residents each due to mobility over the 12 month period.

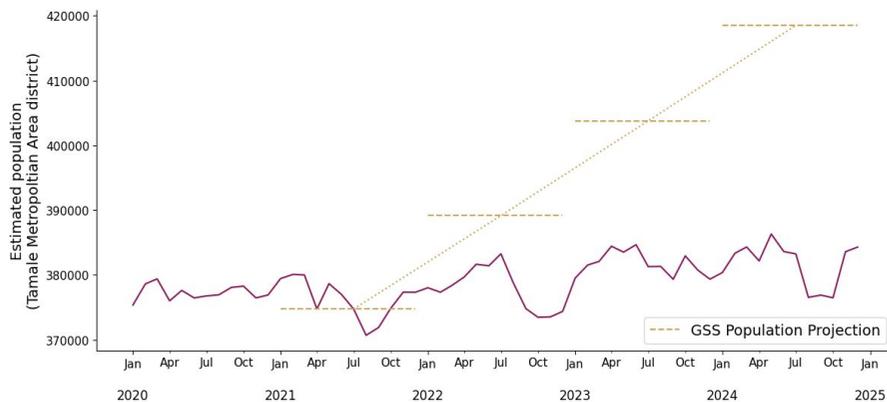
These population changes due to mobility are not currently taken into account in population projections but may have a significant impact on disaster management.

Part 3: Up-to-date population estimates incl. internal mobility

Necessary for preparedness: updated need assessments and risk mapping

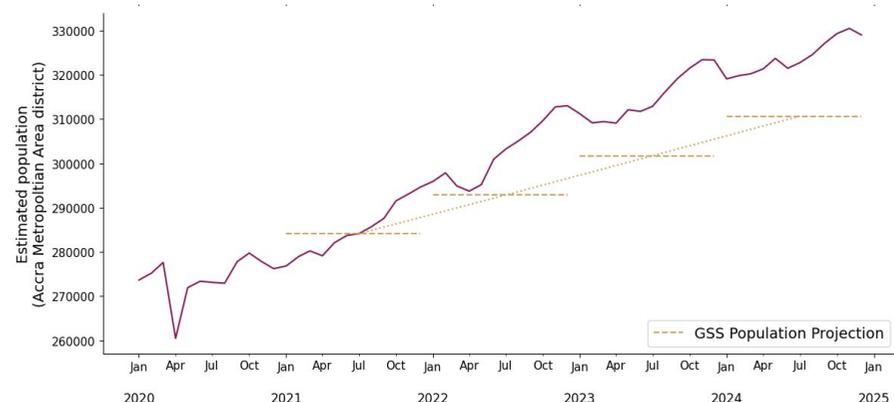
As time passes since the census (2021), the discrepancy between population projections and population estimates based on mobility data increases:

Overestimated population in Tamale:



Comparison of mobility-estimated population and projections for the Tamale Metropolitan area (Jan 2020 to Jan 2025)

Underestimated population in Accra:



Comparison of mobility-estimated population and projections for the Accra Metropolitan area (Jan 2020 to Jan 2025)

Up to date, mobility informed population estimates obtained from mobile operator and survey data are essential to risk assessment, need assessment, response and contingency planning.

Data & data privacy

The mobile network data provided by Telecel Ghana to Flowminder is pseudonymised. This means that **no personal data**, such as an individual's identity, demographics, location, contacts or movements, is made available to the government or any other third party at any time. All results produced by Flowminder are aggregated results (for example, subscriber density in a given municipality), which means that they do not contain any information about individual subscribers. This approach complies with the European Union's General Data Protection Regulation (EU GDPR 2016/679). Data is processed on a server installed behind Telecel Ghana's firewall in Ghana, and no personal data leaves the operator's premises.

Data considerations

The estimates shown are our best current assessment of movements from non-traditional data: anonymised data from a mobile network operator. However, there are a number of uncertainties. The information should be interpreted together with other available evidence.

Acknowledgements

This study was made possible thanks to the pseudonymised call detail records (CDR data) provided by Telecel Ghana.

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